

## PRODUCT GUIDE

*dataTaker*



keeping an



on

REALITY

*dataTaker*

***In a world demanding easy, flexible and reliable results,  
a dataTaker is your solution for Data Acquisition,  
Data Logging, Data Recording, SCADA, RTU.***

***A world of dataTaker solutions awaits you.***

***Measures:*** voltage, current, temperature (thermocouples, RTDs, thermistors), pressure, flow, radiation, depth, force, vibration, velocity and acceleration.

***A dataTaker is your Solution to  
Data Acquisition!***

**Esis Pty Ltd** 02 9416 8032 [www.esis.com.au](http://www.esis.com.au)



## Corporate Profile

# dataTaker



## dataTaker

formerly known as Data Electronics

### In the beginning ...

The first *dataTaker* data logger appeared in 1983. The DT100 was at that time the most innovative and versatile data logger available. Many thousands of *dataTakers* have since been sold around the world through a well established and experienced network of distributors and resellers in 40 countries worldwide.

### A People Company

*DataTaker* are people focused companies that value and respect the individual. Our staff are competent and committed. Many have wide experience in all facets of data acquisition and measurement.

### Philosophy

The product and service philosophy at *dataTaker* is simple. We supply cost-effective solutions based on powerful but easy to use hardware and software. Our equipment can be gainfully used by novices, yet has the functionality to meet the requirements of demanding applications.

The *dataTaker* companies have a commitment to growth by bringing products to market that are based on sound research and incorporate sensible innovation. More than half the company's professional employees are engaged in product development. The Company is committed to providing its customers with the latest and most cost effective solutions to their applications.

### Product range

The Company is now broadening its product line to include realtime data acquisition equipment, suitable for industrial and remote SCADA markets.

Recently, *dataTaker* released the first of its fourth generation of data acquisition equipment – the DT800 – which is faster, more powerful, more accurate, and supports multiple communications standards including Ethernet, USB, RS-232 and PC Card telemetry.

With functional capability more than 20 times greater than any previous generation *dataTaker*, the DT800 family will be the flag bearer of *dataTaker* technological leadership in data collection into the new millennium.

### dataTakers in use

*dataTaker* is now a leading supplier of data logging and data recording equipment to a broad range of customers throughout industry, scientific and educational institutions, and public utilities.

There are three main applications

- **Local** - Online data acquisition and display, control and alarms connected via any PC
- **Remote** - Unattended data logging for single and multisite applications. Reliable data collection using modems connected via telephones, satellites and radio communications.
- **Stand-alone** - Flexible, low-power, battery-operated data loggers with removable data storage.

### Worldwide offices

*dataTaker* (Aust.) Pty Ltd is headquartered in Melbourne, Australia, an office in Sydney and has subsidiaries in the United Kingdom and the United States of America. The subsidiaries and the parent in Australia have recently changed their names to *dataTaker Inc*, *dataTaker Ltd* and *dataTaker Pty Ltd* to further promote the *dataTaker* name.

### Quality standards and warranty

Our commitment to manufacturing quality is total – as demonstrated by our certification to ISO9002 international quality standard. Environmental and functional testing ensures the highest level of reliability in all of our products. We are confident to back our products by an unconditional 3-year warranty, and service is available from the world wide dealer network.

### Technical support

Relax with the knowledge that technical support is available by telephone, e-mail, fax and website.

### The Future

*dataTaker* is moving towards providing customers with total turnkey solutions. Skills and resources required for this new direction will come through collaborating with like-minded companies willing to share knowledge, risks, and the excitement of bringing new technological products to market.



**dataTaker  
(Aust.) Pty. Ltd.**

Certified to ISO9002  
TOTAL QUALITY COMMITMENT

**3 year warranty**





## Quick Selection Guide and Index

### dataTakers

	Analog Channels	Digital & Counter Channels	Expandable	Max Input (volts)	Thermocouple Support	Data Points Stored ('000)	PC Card Support	Display	Communications*	
DT50	5-10	8	x	3	✓	13	✓	opt.	R	<b>Page 7</b>
DT500	10-30	7	✓	3	✓	13	✓	opt.	R	<b>Page 6</b>
DT505	10-30	7	✓	100	✓	13	✓	opt.	R	<b>Page 6</b>
DT515	10-30	7	✓	100	✓	13	✓	opt.	R	<b>Page 7</b>
DT600	10-30	7	✓	3	✓	13	✓	✓	R	<b>Page 6</b>
DT605	10-30	7	✓	100	✓	13	✓	✓	R	<b>Page 6</b>
DT615	10-30	7	✓	100	✓	13	✓	✓	R	<b>Page 7</b>
<b>New</b> DT800	12-42	16	x	10	✓	200+	✓	x	E,R,U	<b>Page 4</b>
DT5 Series	1,2	1	x	2.5	x	16	x	x	P	<b>Page 8</b>
DT1000 Series - 4000 Series	1-4	0	x	2.5	✓	20	x	x	R	<b>Page 8</b>

\*E=Ethernet, R=RS-232, P=Parallel Port, U=USB

### Software

DeLogger Plus	Windows graphical programming	<b>Page 9</b>
DeLogger Pro	Windows graphical programming with remote site support	<b>Page 9</b>
DeTransfer and De Plot	Text based programming, simple charting and DDE/OLE	<b>Page 9</b>

### Accessories

Modem Manager	For reliable interface to a range of modems - PSTN, GSM, Satellite	<b>Page 10</b>
Panel Display	A 2 line x 16 characters LCD display and keypad	<b>Page 10</b>
Enclosures	A range of industrial and portable enclosures	<b>Page 10</b>
Channel Expansion Module	For use with DT500/505/515/600/600/615 data loggers	<b>Page 10</b>
PC Cards	Memory cards for program and data storage	<b>Page 10</b>
PC Card Reader	PC card reader connects to computer via RS-232	<b>Page 10</b>
Manuals	Getting started, reference and applications manuals	<b>Page 10</b>





**High performance  
stand-alone data  
acquisition unit**

**DT800**

***dataTaker***



The dataTaker DT800 is the first of a new series of faster and smarter data acquisition units with the widest range of built-in communications options.

The new dataTakers combine the features found in:

- data loggers (internal storage, very low power)
- plug-in cards (speed)
- data acquisition units (built-in signal conditioning)
- remote telemetry units RTUs (control and communications)
- programmable logic controllers PLCs (digital control) and
- PID controllers (analog control)

With all these functions rolled into a single cost effective package, you can be confident the DT800 is your solution for a wide range of tasks.

#### **Speed**

- 100 kHz sampling
- triggered burst modes (similar to digital oscilloscopes)
- pre & post triggering

#### **Sampling Modes**

- burst mode: to 100 kHz with 14 bit resolution
- normal mode: to 200 Hz with 18 bit resolution

#### **Analog Inputs**

- 12 to 42 channels (depending on sensor type)
- protected  $\pm 40$  V solid state multiplexer
- 14 to 18 bit resolution
- $\pm 10$  mV to  $\pm 10$  V full scale, auto-ranging
- accuracy: 0.01% at 25°C, 0.1% -20 to +60°C
- built-in sensor excitation and conditioning
- 15 internal house keeping channels
- sensor integrity checking

#### **Analog Outputs**

- single -10 V to +10 V output
- 12 bit resolution
- $\pm 20$  mA current

#### **Digital I/O**

- 8 bi-directional channels
- counters, state, relay drives
- 2 sensitive inputs for inductive pickups
- 8 input only channels







## DT800



### Serial Sensor Channel

- RS-232, RS-485 and SDI-12
- programmable prompt and data parsing
- also supports printers, keypads, displays and barcode readers

### Sensor Support Includes:

- 11 thermocouple types
  - $\pm 0.1^{\circ}\text{C}$  linearisation conformance to ITS90
  - $\pm 0.3^{\circ}\text{C}$  reference junction accuracy (  $-20$  to  $+60^{\circ}\text{C}$  )
- RTDs –  $10\Omega$  to  $3\text{k}\Omega$ , Pt, Ni and Cu types,  $\pm 0.2^{\circ}\text{C}$
- thermistors
- bridges
- inductive pickups
- conductivity probes
- vibrating wire sensors

### Alarms

- up to 200 alarms
- separate 2 kByte alarm message storage

### PC Card (PCMCIA)

- single Type 1, 2 or 3 card
- SRAM, FLASH, modems, LANS
- Windows/DOS file formatting

### Data Storage

- 600,000 time stamped data points (200,000 uncompressed)
- expandable via PC Card

### Ethernet

- 10 BaseT with TCP/IP

### USB

- 12 M baud, device (slave) mode, self powered

### RS-232

- 300 to 115 k baud
- handshake: DCD, DTR, DSR, RTS, CTS, RI, XON/XOFF

### Low Power

- 2 mW sleeping • 4W normal operation
- 20 W battery charging
- up to 3 months operation from internal battery

### Power Supply

- internal 12 V 2.2 Ahr battery
- 10 to 28 Vdc
- ensures data integrity during over voltage and brown out conditions





**dataTaker**  
**DT500, DT505**  
**DT 600, DT605**

## **General Purpose Data Loggers**

**dataTaker**



### **Easy Programming**

- GUI (using DeLogger) or
- Text (using DeTransfer)

### **Analog Channels**

- 10 to 30 depending on sensor type
- $\pm 25$  mV to  $\pm 2.5$  V full scale, auto-ranging DT500, DT600
- $\pm 25$  mV to  $\pm 100$  V full scale, auto-ranging DT505, DT605
- accuracy  $\pm 0.15\%$  at  $25^\circ\text{C}$
- resolution 15 bits (to  $1\mu\text{V}$ )
- speed 25 sample per second
- direct sensor connection (no need for sensor conditioning)

### **Digital Channels**

- 4 input / output / low speed counters
- 3 high speed counters

### **Channel Expansion Port**

- 30 Analog Inputs
- 20/10 Digital input / output

### **Sensor Support Includes**

- 11 thermocouple types
- 4 RTD types Pt (  $\alpha = 0.00385, 0.00392$  ) Cu, Ni
- thermistors
- bridges

### **Networking**

- RS-485
- up to 32 dataTakers

### **Host Communications**

- RS-232

### **PC Card**

- extra memory (up to 340,000 readings)

### **Display & Keypad (D600 & DT605 only)**

- current data
- alarm states
- macro programming
- beeper for alarms

### **Internal Battery**

- memory back-up
- UPS function

### **Power Supply**

- 9 to 18 Vac or 11 to 24 Vdc

### **Rugged Construction**

- fabricated steel
- powder coated





## dataTaker DT515, DT615

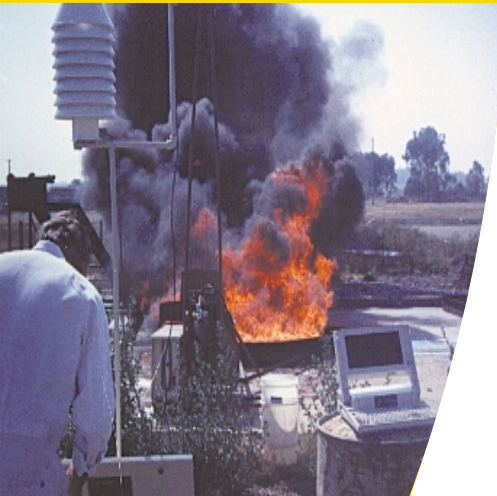
### Geotechnical Data Loggers

- Same as DT505 / DT605 plus
- Vibrating Wire Sensor Support
  - 500 Hz to 5 kHz frequency range
  - simple set-up
  - unique phase-lock-loop filtering
- Simple sensor set-up



## dataTaker DT50

### General Purpose Low Cost Data Logger



#### Easy Programming

- GUI (using Delogger) or
- text (using De transfer etc)

#### Analog Channels

- 5 to 10 depending on sensors
- $\pm 25$  mV to  $\pm 2.5$  V full scale, auto ranging
- accuracy 0.15% at 25°C
- resolution 15 bits
- speed 25 samples per second
- direct sensor connection  
(no need for sensor conditioning)

#### Digital Channels

- 5 input / output / low speed counters
- 3 high speed counters

#### Sensor Support Includes

- 11 thermocouple types
- 4 RTD types Pt (  $\alpha = 0.00385, 0.00392$  ) Cu, Ni
- thermistors
- bridges

#### Host Communications

- RS-232

#### PC Card

- extra memory (up to 340,000 reading)

#### Power Supply

- 9 to 18 Vac or 11 to 24 Vdc

#### Rugged Construction

- fabricated steel
- powder coated





## dataTaker DT5 & DT1000 - 4000 Series

Simple to use compact  
precision Data Loggers

### Measure

• Voltage • Temperature • Humidity • 4-20 mA Loops • Water Depth

The DT5 and DT1000-4000 Series are a range of precision palm sized data loggers. In general, their channels are dedicated to specific sensors, and with some loggers the sensors are built-in. Because of their simplicity the loggers are easily set up using support software running under Windows 95, 98, NT or 2000 (see page 9).

Model	Number of Input Channels														Principal Function
	Case Type		General					Voltage & Current			Temperature			Other	
			Memory (readings)	1 Volt dc	5 Volts dc	10 Volts dc	1 or 10 Volts dc 4-20mA	Ambient	Thermistor	Thermocouple (J,K,T,S)	Humidity	Event	Pressure		
DT5E	1	16k										1		Events	
DT5W3	2	16k											1	Water Depth	
DT5W-10	2	12k											1	Water Depth	
DT5W-20	2	12k											1	Water Depth	
DT1000	3	21k							2					Temperature	
DT1000-LT	3	21k							2					Temperature	
DT1700-200	3	21k						1		1				Temperature	
DT1700-300	3	21k						1		2				Temperature	
DT1700-500	3	21k						1		4				Temperature	
DT2000	3	21k						1			1			Temp & RH	
DT2000-LRH	3	21k						1			1			Temp & RH (Low RH)	
DT4000-110	3	21k			1									Voltage	
DT4000-1CC	3	21k					1							4-20mA	
DT4000-101	3	21k				1								Voltage	
DT4000-1CW	3	21k					1							4-20mA	
DT4000-3T1	3	21k				2		1						Voltage	
DT4000-410	3	21k			4									Voltage	
DT4000-4CC	3	21k					4							4-20mA	
DT4000-4CW	3	21k					4							4-20mA	
DT4000-50T	3	21k			4			1						Voltage	
DT4000	3	21k				2	2							V & 4-20 mA	
DT4000-4A1	3	21k	4											Voltage	
DT4000-4R5	3	21k		4										Voltage	

\* External sensor \*\* Traceable to NIST temperature standards

### Common DT1000 to DT4000 Specifications

- size: 71x53x18mm: 60g
- operating temp range: -40 to 80°C and 0 to 95% RH
- battery life 10-year life at 1 minute (or longer) sampling
- memory: non-volatile 32k x EEROM
- data samples: 21,500 12-bit samples
- scan rate: 10 sec. to once per day
- data retention: >20 years without power
- clock accuracy: 1 minute per month over -40 to 80°C
- PC interface: serial port; half duplex, 19,200 baud
- EMC: meets FCC Part 15 for digital devices  
meets CE for emissions, ESD, & susceptibility
- PC Software: compatible with Windows 95, 98 and NT & 2000

### Common DT5 Specifications

- size: 210x50x25mm and 327x44.5D mm
- operating temp range: -10 to 60°C, 100%RH
- battery life: 3-year life (lithium)
- data samples: 4,000 to 16,000 depending on resolution
- scan rate: once per sec. to once per 18 hrs
- data retention: >20 years without power
- PC interface: parallel port (using handshake lines)
- EMC: meets CE for emissions, ESD & susceptibility
- PC software: compatible with Windows 95, 98 and NT & 2000



Case 3



Case 2



Case 1







## dataTaker Software

All packages run under  
Windows 95, 98, NT  
and Windows 2000



### DeLogger Pro

- easy to use graphical programming
- charts, mimic screens & visual instrument display
- access compatible datastore
- remote site dial up support
- for DT50, DT500, DT600 and DT800 Series

### DeLogger Plus

- easy to use graphical programming
- charts and trending
- unloads data to replay files, spread sheets etc
- logs alarms
- bundled with DT50, DT500, DT600 and DT800 Series

### DeTransfer with DePlot

- for DT50, DT500, DT600 and DT800 Series
- text based programming
- DDE and OLE server capability
- user defundable function/program buttons
- simple trend plots

### dataTaker Spectrum

- for use with DT1000 – 4000 Series of data loggers
- simple logger configuration
- simple data download and archiving
- instant trend plot of data

### dataTaker DATA-i

- for use with the DT5 Series of data loggers
- sets the DT5's sampling rate and start time
- data extraction and archiving





## dataTaker Accessories

### Panel Mount Display (PMD-01)

- use with DT50, DT500 Series
- display current data, alarm states
- macro programming
- factory installed in Enclosure if required



### Modem Manager (MM-01)

- for robust modem communications
- remote site applications
- SMS / pager / host call-out



### Channel Expansion Module (CEM-AD)

- use with DT500 and DT600 series
- 10 to 30 analog channels (relay multiplexer)
- 20 TTL/CMOS digital inputs
- 5 normally open relay contact outputs,  
5 open collector outputs



### PC Cards

- extra memory or data transport
- 512 kB SRAM for 170,000 readings
- 1MB SRAM for 340,000 readings
- 8 to 48 MB FLASH (DT800 only)
- 56K V90 low power modem



### Industrial Enclosures (SIE-800, LIE-500, SIC-500)

- for DT50, DT500, DT600 & DT800 series



### Portable Enclosure (PE-500)

- for one dataTaker DT50/500/600/800 series



### PC Card Reader (MCI-04)

- fast down loading of data to your PC
- RS-232 Interface

### Manuals

- DT50, DT500, DT600 Series (dataTaker Manual, Getting Started with dataTaker, Reference Manual, Advanced Communications Manual)
- DT800 (Getting Started with the DT800, DT800 Manual user)
- DT5 (DT5 User Manual)
- software manuals (DeLogger Plus, DeLogger Pro, DeTransfer)



## What is Data Acquisition Anyway?

Data Acquisition is simply the gathering of information about a system or process. It is a core tool to the understanding, control and management of such systems or processes.

Parameter information such as temperature, pressure or flow is gathered by sensors that convert the information into electrical signals. Sometimes only one sensor is needed, such as when recording local rainfall. Sometimes hundreds or even thousands of sensors are needed, such as when monitoring a complex industrial process.

The signals from the sensors are transferred by wire, optical fibre or wireless link to an instrument which conditions, amplifies, measures, scales, processes, displays and stores the sensor signals. This is the Data Acquisition instrument.

In the past Data Acquisition equipment was largely mechanical, using smoked drums or chart recorders. Later, electrically powered chart recorders and magnetic tape recorders were used. Today, powerful microprocessors and computers perform Data Acquisition faster, more accurately, more flexibly, with more sensors, more complex data processing, and elaborate presentation of the final information.

### Real Time Data Acquisition and Data Logging

Data Acquisition can be divided into two broad classifications – real time data acquisition and data logging.

Real time data acquisition is when data acquired from sensors is used either immediately or within a short period of time, such as when controlling a process. Data logging on the other hand is when data acquired from sensors is stored for later use. In reality, there is a continuum of devices between real time data acquisition and data logging that share the attributes of both of these classifications.

### Data Acquisition and the PC

Over the last twenty years – since the advent of the personal computer – data acquisition has implied Analog to Digital Converter (ADC) boards which plug directly into the internals of the PC. These boards accept signals from sensors, convert them into a digital data form, and allow programs to manipulate the data.

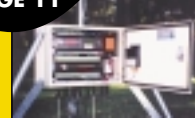
However high speed PCs are electrically noisy environments, and routing of sensitive low level sensor signals into the PC can result in serious errors in measurement. It is far better to measure these low level signals outside the computer, and to transfer the data in digital form to the computer. The prime advantage of plug in ADC boards has been speed, but now that advantage has diminished with the introduction of high speed data interfaces have become standard on most PCs – Ethernet, USB and soon Firewire.

### Evolution in Data Acquisition...

Data Acquisition technology is evolving rapidly. New high speed data interfaces and fast networking systems are forcing a rethink. Why bring sensitive low level signals inside the computer where accurate measurement will be compromised?

The preferred arrangement is to have the ADC outside of the computer, maybe even at some considerable distance from the computer. This a DAQ box – a box of electronics that provides all of the functionality and speed of a DAQ board, plus new features such as standalone capability to process, consolidate and log data for later downloading, superior thermocouple and strain gauge performance and more convenient access for sensor wiring. Further, a series of DAQ boxes interconnected by a fast network allows data gathering closer to sensors, for improved signal quality and reduced wiring cost.

**The *dataTaker* DT800 is the first of a new breed of DAQ boxes. It has the speed of a plug-in DAQ board, the flexibility of DAQ boxes, the connectivity of a computer and the power consumption of a data logger. Four in one!**





# ***dataTaker***

## **dataTaker Offices**

**dataTaker is your  
solution for**

- **programmable**
  - **expandable**
  - **affordable**
- data acquisition**

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